
**Information Management and
Technology Division**

B-223777

October 30, 1987

The Honorable Alan Cranston
Chairman, Committee on Veterans' Affairs
United States Senate

The Honorable G. V. (Sonny) Montgomery
Chairman, Committee on Veterans' Affairs
House of Representatives

The Honorable Frank H. Murkowski
Ranking Minority Member, Committee on Veterans' Affairs
United States Senate

In August 1986, you requested that we review the Veterans Administration's (VA) efforts to modernize automated computer systems within the Department of Veterans Benefits, which were resulting in inefficient and costly support for veterans' benefits programs. To correct these deficiencies, the department initiated a \$153 million modernization program in 1985, which it plans to complete in 1992. As of the end of February 1987, about \$12 million had been spent, primarily on word processors and other office automation equipment. Work had also begun on two prototype projects and a functional and data requirements study of department systems. In fiscal year 1987, VA planned to obligate \$22 million for seven modernization activities (see appendix I). Given VA's problems with previous automation efforts, you asked us to determine whether the department would achieve its goals of improved service to veterans and increased economy and efficiency in its operations within its planned time frame and budget.

As VA has recognized, automation offers the opportunity to improve the agency's service to our nation's veterans. The department's current effort to modernize its service delivery systems is a promising step in that direction. However, VA has not completed the planning and analysis necessary to demonstrate how one of the major benefits of modernization—improved productivity—will be achieved. We are concerned that, if the anticipated productivity improvements do not materialize, the department's proposed elimination of 1,100 staff positions could impair service to veterans.

In response to your concerns about the time frame and costs of modernization, we cannot determine whether the department will complete its present effort within the projected 6 years and \$153 million. Because

the department has not completed the necessary planning and analysis, it cannot support these costs and scheduled projections, nor can it justify that its approach to modernization is cost effective and optimal. Specifically, the department has not developed adequate information addressing (1) well-defined goals and measurable objectives, (2) alternative approaches, and (3) the costs and benefits of the proposed approach.

We acknowledge that two types of benefits, quantifiable and non-quantifiable, will result from modernization. Additionally, we recognize that quantifiable benefits alone are not the only basis on which to justify an automation program. However, VA has neither sufficiently documented the quantifiable benefits—such as improved productivity—nor adequately identified the non-quantifiable benefits so that decisionmakers can fully assess modernization.

In our opinion, until information from more detailed analyses is developed, as required by federal systems development criteria, the Congress will not be able to make sound funding decisions and the department cannot ensure that its general goal—improved economy and efficiency combined with improved service to veterans, while eliminating 1,100 staff positions—can be achieved in 6 years at a cost of \$153 million and that the program is pursuing an optimal approach. Moreover, as we previously reported, past VA efforts lacking these types of analyses failed to achieve goals within the costs and time projected. We believe, therefore, that further analyses are both prudent and necessary, and we are recommending that such analyses be completed.

In commenting on a draft of this report, VA stated that it was a reasonable presentation of the activities undertaken to date by the department as part of the modernization effort. VA agreed with our recommendation that additional analyses need to be completed. The agency has revised its modernization approach to include the definition of goals and measurable objectives, the identification and evaluation of alternative strategies, and the documentation of the costs and benefits realized from modernization activities. After agency comments were received, we asked agency officials about the impact this redirection has had on VA's planned modernization-related expenditures of \$22 million in fiscal year 1987. A department official told us that \$12 million, previously projected for the acquisition of equipment and software development contracts, had been deferred and would not be spent in fiscal year 1987. VA's comments are included in appendix IV.

We conducted our audit work between August 1986 and March 1987, reviewing documents related to the management and planning of the systems modernization program, interviewing key personnel in VA and other agencies regarding systems development, and evaluating office automation in field locations. Our review was conducted in accordance with generally accepted government auditing standards. (See appendix II for details of our scope and methodology.)

Background

The department relies heavily on automation to process approximately \$16.8 billion in compensation, pension, education, insurance, and home loan benefits annually to 8.3 million veterans and their dependents. Veteran queries and requests for benefit information originate at one of the department's 58 regional offices. Processing and data storage use large computers located in VA's three data processing centers in Austin, Texas; Hines, Illinois; and Philadelphia, Pennsylvania. Regional offices submit and receive information to and from these data processing centers through computer terminals electronically linked by data communications. Limited data storage and processing capability are currently available at the regional offices.

Attempts have been made in the past to modernize the department's systems. In 1977, GAO reported¹ that VA had not established measurable goals, nor had it adequately analyzed alternative approaches to the redesign of its compensation, pension, and education system, also called the Target system. In August 1986, GAO reported on the extent to which the Target system was modernized.² We found that two major activities, initially projected to cost \$50 million, had escalated to \$100 million. While the first objective of placing hardware in regional offices was accomplished, the second objective, redesigning the claims-processing software, was not accomplished. In our opinion, VA's lack of measurable goals and inadequate analysis of alternative approaches contributed to the agency's inability to redesign the software. Specifically, VA gave priority to regional office operations and performed limited planning to accomplish software redesign.

VA's preliminary step in planning for the latest department modernization effort was to charter McManis Associates, Inc., a consulting firm, to

¹Veterans Administration, Justification of Costs and Benefits of Proposed Computer System (Target) (GAO HRD-77-98, July 20, 1977).

²Computer Systems: VA's Target Project Never Achieved Redesign of its Processing Software (GAO IMTEC-86-30BR, August 21, 1986).

produce a modernization implementation plan. McManis identified the following problems with existing ADP systems: (1) users in the field needed faster access to data about veterans and more data-processing capabilities; (2) aging hardware and telecommunications systems were becoming costly and difficult to maintain; and (3) outmoded software and redundant, non-standardized data in multiple data bases were difficult to maintain and use.

To address these problems, the McManis plan proposed a \$141 million, 4- to 5-year modernization program with the overall goal of improved service to veterans and increased economy and efficiency. It presented five primary modernization activities that focused on managing the program, decentralizing some ADP operations to the regions, replacing obsolete hardware, improving software efficiency, and sharing agency data. The McManis plan also recommended that additional studies be done to determine which systems should be decentralized, which hardware replaced, and which data in the various data bases should be integrated or consolidated to avoid redundancy.

Building on the McManis plan, the department published its own modernization plan in January 1987. This plan was developed to provide the detail needed to implement modernization. The department's plan expanded the five McManis plan activities into seven activities and provided a cost/benefit summary stating that the \$153 million investment would be recovered by 1994. However, because the department is still performing requirements studies for modernization, its plan is not specific as to which systems, data, and processes will be affected by modernization.

The VA Administrator mandated automation modernization in March 1985. By March 1987, the department had begun several projects related to the modernization, including:

- Organizing its own 362 staff ADP department, independent of the central agency ADP office.
- Upgrading existing systems.
- Procuring \$11 million in word processing hardware.
- Beginning the requirements analysis to determine which systems would be affected by modernization.
- Starting a department data dictionary.³

³Describes the elements of data in a system including the names of the data elements and the related data structure.

- Initiating a prototype regional office loan system.
- Designing a prototype optical disk system.

A chronology of events related to modernization is included in appendix III.

Analysis Needed to Determine Costs and Benefits and to Justify the Program

Although the modernization is underway, planning and analysis justifying the program are still needed. Recent studies⁴ indicate a high risk of problems for major systems development projects in the absence of adequate planning and analysis. Office of Management and Budget (OMB) guidance in its circulars on ADP planning and budgeting, Federal Information Resources Management Regulation chapter 201, and Federal Information Processing Standards Publication (FIPS) 64, recommend early and specific analysis to identify program goals and to justify cost efficiency with respect to alternative program approaches.

We found three primary areas where the department has not adhered to the above mentioned guidance. First, it has not yet identified the specific goals and program objectives of modernization. Until the goals and objectives are better defined, the department does not have the information it needs to support the cost and time frame projected for modernization, nor does it have the criteria for measuring achievement of broad modernization goals. Second, the department is pursuing an approach to modernization on the basis of decentralized processing without having analyzed the costs and benefits of alternative strategies to determine how to meet user needs with the best rate of return. Third, it did not adequately evaluate the costs and benefits of the modernization strategy being pursued.

Program Goals and Objectives Not Yet Defined

A 1984 joint report⁵ defined key elements of planning, which included the need for clear program objectives. To provide the tools that decision-makers and the Congress need to manage and oversee a major program, the report stated that "each program objective should relate directly to

⁴Management of the United States Government, Fiscal Year 1988, The President's Management Improvement Program, 1987 and "Large System Trends," Systems Development and Implementation, Coopers and Lybrand, 1986.

⁵A Five Year Plan for Meeting the Automatic Data Processing and Telecommunications Needs of the Federal Government, Volume I: Planning Strategies, joint report by the Office of Management and Budget, Department of Commerce, and General Services Administration, April 1984.

the mission and organization it supports and should be stated in measurable terms, specifying scope, time, and explicit performance standards to determine successful achievement."

The department is in the process of defining the scope of modernization, and thus cannot yet specify measurable objectives and goals. For example, the department's goals state that operations will be more efficient by upgrading and/or decentralizing some software and integrating some data bases. However, the department has not determined which of its over 2,700 software programs, containing over 2.1 million lines of code, will be decentralized and/or upgraded, and which data from these programs will be shared by data bases. Depending on the volume of work, the effort could take several months or several years. Until the scope of modernization can be estimated, the agency cannot accurately assess the cost and time frame for modernization.

The McManis plan urged the department to track and quantify the benefits of modernization as projects are implemented in order to show that it is meeting its goals and to achieve continued congressional support for funding the program. The department, however, has not identified how it will track such benefits. It has not developed a baseline against which to measure the progress of its only operational modernization effort—the installation of word processors in the field. While we found that installation of \$11 million in word processing capability in the regions—known as the regional office automation project—was well-received by users, quantifiable benefits cannot be measured.

Additionally, without measurable goals, the results of modernization projects are difficult to evaluate. For example, VA plans to improve efficiency and service to veterans by decentralizing some operations to regional offices through the use of regional minicomputers. A network of about 10,000 terminals located in every state, Puerto Rico, and the Philippines would support department activities. However, the improvements in efficiency and service to veterans have not been defined in measurable terms. Until improvements are defined in measurable terms, such as decreased processing errors or shorter claim approval time, neither VA nor the Congress will be able to assess the effects of this modernization project.

**Alternatives Analysis
Based on Cost/Benefit
Data Not Conducted**

FIPS 64 and Federal Information Resources Management Regulation 201-30 recommend analysis of the costs and benefits of alternative solutions to determine which will provide the optimal return on investment. While VA has done some work to justify modernization, primarily by expanding upon the McManis plan, the department did not follow recommended federal criteria for evaluating different alternatives based on a cost/benefit analysis. Modernization was based on an assessment of only one strategy—decentralizing processing and data storage using minicomputers in the regional offices connected to the large computers at VA's three data processing centers. Other alternatives might include expanding the capabilities of the existing three data processing centers, or establishing additional data processing centers without installing minicomputers in each regional office. These alternatives were not compared to the selected approach to determine the optimal alternative, nor does VA's modernization plan call for such analysis in the future. In our opinion, under various circumstances, alternatives other than decentralization can be more cost effective. Without analysis, the department cannot ensure that it is pursuing an optimal approach to modernization.

**Cost/Benefit Analysis for
Selected Alternative Not
Complete**

OMB Circular A-11 requires agencies to provide a detailed life-cycle cost/benefit analysis for each major initiative contained in their budget. Because the department did not identify and support the major costs and benefits of the decentralized approach being pursued for modernization, in February 1986 OMB, in commenting on the VA modernization budget submission, instructed the agency to follow FIPS 64 in analyzing costs and benefits for modernization. While the department did prepare a brief summary of costs and benefits associated with its modernization approach, detailed cost components were not identified, major costs were not considered, and the cost and benefit figures were not supported by analysis or explanation of assumptions. The department took the cost figures for its summary primarily from the McManis plan. Table 1 presents the cost components the department used in its cost/benefit summary.

**Table 1: Department of Veterans
Benefits' Cost Components of
Modernization**

Component	Amount
Personnel Compensation	\$7,806,000
Transportation	2,455,000
Rents, Communications, and Utilities	^a
Contracts for Services	51,072,000
Maintenance	15,988,000
Training	1,310,000
Operating Supplies	2,100,000
ADP Equipment ^b	69,400,000
Other Equipment	3,500,000
Total	\$153,631,000

^aAlthough the department showed this component in the summary, no cost was presented

^bThe department did not provide further elaboration of this category in the summary

^cThe department's modernization budget shows that the optical disk system under this component is projected to cost \$25 million

We did not independently verify the accuracy of the cost components that were used in the department's cost/benefit summary. However, we found several inadequacies in the department's summary analysis. Specifically, the summary

- did not contain telecommunications costs, which VA estimates could be over \$150 million,
- did not include earlier costs of approximately \$7 million incurred in office automation, and
- possibly underestimated costs associated with the implementation of an optical disk system by as much as \$33 million.

We reviewed these items because of their importance to the modernization effort. We found that a more accurate representation of their costs could significantly increase the cost section of the cost/benefit presentation.

FIPS 64 specifies that the costs of leasing, maintaining, and purchasing telecommunications services and equipment should be included in cost/benefit analyses for ADP systems. The department did not include telecommunications costs in its cost/benefit analysis because it does not view them as department costs. However, VA's central office plans to allocate the costs of its telecommunications system to the department based on the department's usage. VA projects that the department will use 46 percent of the planned agency-wide telecommunications system.

On the basis of the estimated \$330 million cost for such an agency-wide system, the department's telecommunications expense will be significant. If the department has to bear its share of the telecommunications expense, this one item alone could increase the cost attributable to the department modernization effort by over \$150 million.

This telecommunications system is important to the success of the modernization strategy because the strategy will rely on the transfer of data between regional office minicomputers and central data files located at the three data processing centers. Furthermore, the omission of telecommunications costs in assessing the cost/benefit of the modernization program is inconsistent with another VA cost/benefit analysis. VA developed a cost/benefit analysis for its Decentralized Hospital Computer Program that included a portion of the costs of the telecommunications upgrade that directly support that program.

Although benefits resulting from office automation are being credited to modernization, part of the office automation expenditures were not included in the total cost of modernization. Specifically, the department did not include the fiscal year 1985 obligation of approximately \$7 million for word processors. The department considers office automation to be a modernization project. In fiscal year 1987, it eliminated 264 staff positions, which it said was made possible due to these machines and other word processors mainly purchased in 1985 and 1986. Although these staff savings were attributed to modernization in its cost/benefit summary, department officials said the purchase of the word processors in fiscal year 1985 was not included in the cost component of the cost/benefit presentation because modernization had not been approved at that time.

We also found that the costs of implementing an optical disk system possibly were underestimated. The department envisions using optical disks in most or all of the 58 regional offices to store vast volumes of information currently stored manually in file cabinets. The department estimated the cost for optical disk implementation to be \$25 million; however, the department did not develop detailed support for that estimate. On the other hand, the vendor for the optical disk system that VA tested estimates the configuration the department described would cost in excess of \$1 million for each regional office.

Furthermore, the department could not provide us with documentation for the benefits in its summary cost/benefit analysis. The primary benefit projected for modernization results from the reduction of 1,100 staff

positions. The program manager told us that VA negotiated the 1,100 staff reduction goal to quantify sufficient benefits in order to obtain OMB's support for modernization. The program manager's statement was confirmed by OMB and other VA officials. Analysis of productivity increases were not completed, nor were other operational changes that would permit such staff reductions identified and documented, even though this analysis is recommended in VA guidelines. The modernization program manager told us that the staff reduction will be made even in the absence of analysis of productivity improvement. In our opinion, the impact of reduced staff cannot be assessed without such analysis. We are concerned whether achieving this benefit may impair service to veterans.

Conclusions

In a time of competing demands on the federal budget, both VA and the Congress need sufficient information to make informed decisions on whether to devote resources to major investments, such as the Department of Veterans Benefits modernization program. However, the department has not developed the basic information needed to support such decisions because it has not (1) specified measurable goals and objectives against which to assess progress, (2) analyzed the costs and benefits of alternative approaches to determine the optimal modernization strategy, and (3) adequately assessed and documented the costs and benefits of the selected approach. Such information reduces the risks associated with major system development projects.

In earlier modernization efforts, VA was unable to limit cost growth and to ensure that system objectives could be achieved because of the lack of planning and analysis. In our opinion, such planning and analysis needs to be completed to ensure that this latest modernization initiative will meet agency goals within established costs and time frames.

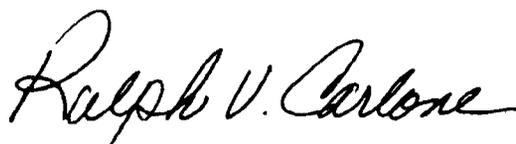
We acknowledge VA's need to modernize in order to improve service to veterans while reducing costs. We also recognize that quantifiable benefits alone may not always be sufficient to justify a major systems development effort. However, documentation of the costs and all benefits—quantifiable and non-quantifiable—is necessary for VA and the Congress to have a basis for making informed decisions on modernization.

Recommendation

To ensure that modernization goals are achieved within established time frames and estimated costs, we recommend that the Administrator of Veterans Affairs direct the Department of Veterans Benefits to complete

analyses that provide specific goals and objectives against which program progress can be measured, and to validate that the chosen solution is optimal, based on a documented analysis that clearly lays out the costs and benefits of alternatives.

We are sending copies of this report to the appropriate House and Senate Committees; the Administrator of Veterans Affairs; the Director, Office of Management and Budget; and will make copies available to others upon request.

A handwritten signature in black ink that reads "Ralph V. Carlone". The signature is written in a cursive style with a large initial "R".

Ralph V. Carlone
Director

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Table 1: Department of Veterans Benefits' Cost
Components of Modernization

Abbreviations

ADP	automated data processing
FIPS	Federal Information Processing Standards
GAO	General Accounting Office
IMTEC	Information Management and Technology Division
OMB	Office of Management and Budget
VA	Veterans Administration

Fiscal Year 1987 Budget Plan for the Department of Veterans Benefits Modernization Activities

Activity	Description	Amount
Establish Organization & Control	Refine plans, develop monitoring & reporting mechanisms	\$1,500,000
Develop Software	Conduct requirements analysis, upgrade existing systems, develop office automation plan & procure software tools	9,553,000
Develop Hardware	Acquire optical disk prototype & regional office minicomputers, determine mainframe requirements	8,350,000
Develop Telecommunications	Determine telecommunications requirements	200,000
Ensure ADP Security	Conduct risk analysis	400,000
Support Existing Systems	Develop hardware plan, procure & install equipment, develop service levels	797,000
Implement Data Administration	Determine data base standards & develop a data dictionary	1,200,000
Total		\$22,000,000

Objective, Scope, and Methodology

The House and Senate Veterans' Affairs Committees requested that we review the management of information resources at the Veterans Administration (VA). They subsequently asked us to focus on the modernization program for Department of Veterans Benefits automation. We are continuing our review of the agency's management of information resources and plan to report on this at a later date.

To assess the progress of the department's automated data processing modernization program, we analyzed: (1) an implementation plan prepared by McManis Associates, Inc., that VA cites as the foundation for the modernization, (2) the department's January 1987 modernization plan, (3) modernization-related contracts, and (4) the various projects the department has initiated. We also interviewed department and VA managers from both user and ADP organizations in the VA Central Office in Washington, D.C., and the Data Processing Centers in Austin, Texas; Chicago, Illinois; and Philadelphia, Pennsylvania; and evaluated the department's ADP support including office automation at eight regional offices in Albuquerque, New Mexico; Chicago, Illinois; Houston and Waco, Texas; New Orleans, Louisiana; Milwaukee, Wisconsin; St. Paul, Minnesota; and Washington, D.C. In addition, we interviewed and gathered information from representatives of McManis Associates, Inc., and reviewed the Maximus, Inc., contractor-developed study of regional office operations.

To analyze whether the department's modernization program adheres to federal regulations and systems development life-cycle guidelines for major ADP projects, we interviewed cognizant General Services Administration and Office of Management and Budget officials and reviewed applicable criteria in the Federal Information Processing Standards, Office of Management and Budget circulars, the Federal Information Resources Management Regulations, and the Paperwork Reduction Act of 1980. We did not independently verify the cost components developed by the department in its January 1987 summary cost/benefit analysis.

Chronology of the Department of Veterans Benefits Modernization

March 1985	VA Administrator mandates automation modernization
September 1985	VA expends \$7 million for office automation/word processors.
October 1985	McManis Associates, Inc., completes Modernization Implementation Plan
October 1985	Department of Veterans Benefits establishes ADP organizational structure and management staff
April 1986	Department of Veterans Benefits establishes independent ADP organization
June 1986	Senior Information Resources Management official approves Department of Veterans Benefits contract for regional office study
July 1986	Department of Veterans Benefits begins first modernization prototype—Loan Processing System
July 1986	Senior Information Resources Management Official approves Department of Veterans Benefits contracts for Target study and data dictionary
August 1986	Senior Information Resources Management Official approves Department of Veterans Benefits contracts for optical disk prototype and system requirement study
January 1987	Department of Veterans Benefits publishes its own modernization plan
January 1987	Department of Veterans Benefits completes regional office study and begins analysis of data

Agency Comments

Office of the
Administrator
of Veterans Affairs

Washington DC 20420



SEP 9 1987

In Reply Refer To

Mr. Richard L. Fogel
Assistant Comptroller General
U.S. General Accounting Office
Human Resources Division
Washington, DC 20548

Dear Mr. Fogel:

This responds to your August 5, 1987, draft report ADP SYSTEMS: Department of Veterans Benefits Modernization Program. The General Accounting Office (GAO) reviewed the Veterans Administration's (VA) efforts to modernize outmoded automated systems within the Department of Veterans Benefits (DVB) and acknowledges that modernization is necessary in order to improve service to veterans while reducing costs.

To ensure that modernization goals are achieved within established time frames and estimated costs, GAO recommends that I direct DVB to complete analyses that provide specific goals and objectives against which program progress can be measured and to validate that the chosen solution is optimal, based on a documented analysis which clearly lays out the costs and benefits of alternatives.

The draft report is a reasonable presentation of the activities undertaken to date by DVB as part of the modernization effort, and I agree with the recommendation. Indeed, the VA has recognized some of the weaknesses in the modernization plan before the draft report was issued, and we are already working to make the recommended changes.

The Associate Deputy Administrator for Management (ADA) has been working with DVB to resolve the issues GAO raised as part of the normal information systems planning process. In July, ADA and DVB staff worked closely to assess progress on modernization and to identify the tasks critical to ensuring the ultimate success of DVB modernization. This cooperative effort resulted in a revised modernization approach that includes the tasks required to define goals and measurable objectives and permit DVB to evaluate interim and long-term results, fully document DVB information requirements, identify and evaluate alternative modernization strategies, and document the costs and benefits realized from modernization activities. The ADA will continue to monitor DVB's progress with the revised plan.

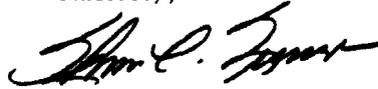
"America is #1--Thanks to our Veterans"

2.

Mr. Richard L. Fogel

We believe these efforts fully address GAO's concerns and will provide DVB with an excellent basis for sound management decisions to accomplish the long-range modernization goal.

Sincerely,



THOMAS K. TURNAGE
Administrator

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